

Claims:

1 Discrete testing apparatus for testing a semiconductor integrated circuit device in die form, comprising:

a) a first plate;

5 b) a die-receiving cavity in the first plate;

c) a second plate mating with the first plate;

d) alignment means for aligning the first plate with the second plate;

10 e) one of the first and second plates having a plurality of die contacting conductors extending therefrom;

15 f) the plurality of conductors being positioned so that, when the first plate and the second plate are aligned by the alignment means and the die is positioned in the die-receiving cavity, the contact pins are in alignment with contact locations on the die; and

g) connector terminals in electrical communication with the contact pins, the connector terminals being mounted to the one of said plates.

2. Discrete testing apparatus as described in claim 1,
further comprising:

means to bias die received in the die receiving cavity
with the die contacting conductors after the first and
second plates have been mated.

3. Discrete testing apparatus as described in claim 2,
further comprising:

the connector terminals being positioned on the second
plate so that, when the first plate and the second plate
are aligned by the alignment means and the die and the
insulative substrate are positioned in the die-receiving
cavity, the contact pins are in alignment with contact
locations on the die.

4. Discrete testing apparatus as described in claim 1,
further comprising:

the connector terminals being positioned on the second
plate so that, when the first plate and the second plate
are aligned by the alignment means and the die and the

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7. Discrete testing apparatus as described in claim 1,
further comprising:

the die contacting conductors including flexible rods
which extend into the die receiving cavity after the first
and second plates have been mated.

8. Discrete testing apparatus as described in claim 1,
further comprising:

the die contacting conductors each including a contact
pad which is in alignment with the die receiving cavity
after the first and second plates have been mated.

9. Discrete testing apparatus as described in claim 1,
further comprising:

a platform corresponding to the die receiving cavity,
the platform being biased by elastomeric polymer so as to
cause the die to establish contact with the die contacting
conductors.

10. Discrete testing apparatus for testing a semiconductor device in die form, comprising:

a) a first plate;

b) a die-receiving cavity in the first plate;

5 c) a second plate;

d) alignment means for aligning the first plate with the second plate;

e) means to secure the first and second plates together;

10 f) an insulative substrate having a plurality of conductors thereon and dimensioned so as to fit within the testing apparatus adjacent to the die when the die is in the die receiving cavity;

15 g) a plurality of contacts on the plurality of conductors, the contacts being positioned so that, when the first plate and the second plate are aligned by the alignment means and the die and the insulative substrate are positioned in the die-receiving cavity, the contacts are in alignment with contact locations on the die;

h) connector terminals in an electrical communication with the contact pins; and

5 i) means to bias the die and the insulative substrate together when the first plate and the second plate are secured together, thereby causing the contacts to be maintained in electrical communication with said contact locations, wherein

10 when the first and second plates are secured together with the die in the die receiving cavity, a plurality of said contact locations are in electrical communication with the connector terminals.

11. Discrete testing apparatus as described in claim 10, further comprising:

15 the connector terminals being positioned on the second plate so that, when the first plate and the second plate are aligned by the alignment means and the die and the insulative substrate are positioned in the die-receiving cavity, the contact pins are in alignment with contact locations on the die.

12. Discrete testing apparatus as described in claim 10,
further comprising:

the die receiving cavity having a biased platform
therein, the biased platform exerting a biasing force
against the die, the biasing force being sufficiently
uniform to cause the die to establish contact with the die
contacting conductors.

13. Discrete testing apparatus as described in claim 10,
further comprising:

the die contacting conductors including a flexible
rods which extend into the die receiving cavity after the
first and second plates have been mated.

14. Discrete testing apparatus as described in claim 10,
further comprising:

means to bias die received in the die receiving cavity
with the die contacting conductors after the first and
second plates have been mated.

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15. Discrete testing apparatus as described in claim 10,
further comprising:

the die contacting conductors including a contact pads
which are in alignment with the die receiving cavity after
the first and second plates have been mated.

16. Discrete testing apparatus as described in claim 10,
further comprising:

the die contacting conductors including a contact pads
which are in alignment with the die receiving cavity after
the first and second plates have been mated.

17. Discrete testing apparatus as described in claim 10,
further comprising:

a platform corresponding to the die receiving cavity,
the platform being biased by elastomeric polymer so as to
cause the die to establish contact with the die contacting
conductors.

18. Discrete testing apparatus for testing a semiconductor device in die form, comprising:

a) a first plate;

b) a die-receiving cavity in the first plate;

c) a second plate;

d) means to secure the first and second plates together;

e) a plurality of conductors dimensioned so as to fit within the testing apparatus adjacent to the die when the die is in the die receiving cavity;

f) a plurality of contacts on the plurality of conductors, the contacts being positioned so that, when the first plate and the second plate are in alignment, and the die is positioned in the die-receiving cavity, the contacts are in alignment with contact locations on the die;

g) connector terminals in electrical communication with the contacts; and

h) means to bias the die and the insulative substrate together when the first plate and the second

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plate are secured together, thereby causing the contacts to be maintained in electrical communication with said contact locations, wherein

when the first and second plates are secured together with the die in the die receiving cavity, a plurality of said contact locations are in electrical communication with the connector terminals.

19. Discrete testing apparatus as described in claim 18,
further comprising:

said plurality of contacts on the plurality of conductors being mounted to an insulative substrate, the insulative substrate being supported by the first and second plates when the first and second plates are secured together.

20. Discrete testing apparatus as described in claim 18,
further comprising:

a spacer plate which fits within the die receiving cavity and the die, and which precisely positions the die for subsequent alignment.

24. Discrete testing apparatus as described in claim 14,
further comprising:

the external connector leads being secured by the die
cavity plate and terminating on the die cavity plate as
5 contact pads, the contact pads being in approximate planar
alignment with the contact location on the die.

25. Discrete testing apparatus as described in claim 18,
further comprising:

contact between the contact locations on the die for
said electrical communication with the contact terminals
being established by TAB (tape automated bonding) tape
which is not bonded with the die at the contact locations.

26. Discrete testing apparatus as described in claim 25,
further comprising:

15 the second plate including a rigid cover plate and a
resilient compressible elastomeric strip, the rigid
elastomeric strip biasing the TAB tape against the die,
thereby establishing an ohmic contact between the die
contact locations and conductive traces on the TAB tape.

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27. Discrete testing apparatus as described in claim 18,
further comprising:

the plurality of contacts being conductive polymer
contacts.

5 28. Discrete testing apparatus as described in claim 28,
further comprising:

the plurality of contacts being located in the second
plate.

29. Discrete testing apparatus as described in claim 28,
further comprising:

the plurality of contacts being located in the die
cavity housing.

30. Discrete testing apparatus as described in claim 18,
further comprising:

15 the plurality of contacts being conductive soft metal
contacts.

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31. Discrete testing apparatus as described in claim 28,
further comprising:

a) the plurality of contacts being located in the
second plate;

5 b) the cover plate supports said plurality of
contacts; and

c) the first plate including a resilient
compressible elastomeric strip, the rigid elastomeric strip
biasing the TAB tape against the die, thereby establishing
an ohmic contact between the die contact locations and the
plurality of contacts.

32. Discrete testing apparatus as described in claim 18,
further comprising:

a) the cover plate including a dielectric cover; and

15 b) the plurality of contacts being contact pins
which are mounted to the dielectric cover.

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~~33. Discrete testing apparatus as described in claim 18,
further comprising:~~

a) contact between the contact locations on the die for said electrical communication with the contact terminals being established by TAB (tape automated bonding) tape which is not bonded with the die at the contact locations; and

b) the TAB tape extending beyond the confines of a fixture formed by the first and second plates and terminating in an external connector, the external connector including said connector terminals.

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